

### REMARKS

Claims 1-18 are pending in the above application.

The Office Action dated March 14, 2007, has been received and carefully reviewed. In that Office Action, claims 1, 2, 5, 7, 12, 13, 16 and 18 were rejected under 35 U.S.C. 102(b) as being anticipated by King. Claim 4 was rejected under 35 U.S.C. 103(a) as being unpatentable over King in view of Milhizer, claim 6 was rejected under 35 U.S.C. 103(a) as being unpatentable over King in view of Cox, and claims 9-11 were rejected under 35 U.S.C. 103(a) as being unpatentable over King in view of Gulezynski. Claims 3 and 14 were rejected under 35 U.S.C. 103(a) as being unpatentable over King in view of Takatsu, claim 8 was rejected under 35 U.S.C. 103(a) as being unpatentable over King in view of Geller, and claim 15 was rejected under 35 U.S.C. 103(a) as being unpatentable over King. Claims 1, 7 and 18 are also rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art ("APA") in view of King. Each of these issues is addressed below, and reconsideration and allowance of claims 1-18 is respectfully requested in view of the following remarks.

### DRAWINGS

The Office Action objects to the drawings for failing to show a clock signal transmitter comprising a second light-emitting element and a clock signal receiver comprising a second light-receiving element. It is respectfully submitted that this feature of the invention is illustrated in Figure 2 where clock-signal-transfer light-emitting element 8 comprises an example of a second light-emitting element, and wherein clock-signal-transfer light-receiving element 9 comprises an example of a second light-receiving element. First light emitting element 4 and a first light receiving element 5 are also illustrated in this figure. The above claim elements are illustrated in the drawings, and the objection to the drawings is therefore respectfully traversed.

### REJECTIONS UNDER 35 U.S.C. 102(b)

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by King. This rejection is based on the assertion that under the broadest reasonable interpretation of "photocoupler," King's optical TDM transmission system constitutes a photocoupler. However, as provided by

MPEP 2111, “The broadest reasonable interpretation of the claims must also be consistent with the interpretation that those skilled in the art would reach.” *In re Cortright*, 49 U.S.P.Q. 2d 1464, 1468 (Fed. Cir. 1999). In the present case, nothing in the record suggests that one skilled in the relevant arts would refer to King’s optical transmission system as a “photocoupler.” Rather, one skilled in the art would understand a photocoupler to be a device that optically couples electrical circuits. As shown by the enclosed definition from the McGraw-Hill Dictionary of Scientific and Technical Terms, Sixth Edition, 2003, a photocoupler is another name for an optoisolator. One example of an optoisolator is: “a coupling device in which a light-emitting diode, energized by the input signal, is optically coupled to a photodetector such as a light-sensitive output diode, transistor or silicon controlled rectifier.” King does not disclose a photocoupler under any reasonable interpretation of this term. It is therefore respectfully submitted that King does not show a photocoupler as recited in claim 1 and that claim 1 is allowable over the art of record at least because a photocoupler having the recited elements has not been shown.

If this rejection is not withdrawn, it is respectfully requested that the examiner provide evidence to show that an optical multiplexing system such as the one disclosed in King would be referred to by one skilled in the relevant arts as a “photocoupler.”

Claim 1 further distinguishes over King by reciting “one or more time division means.” It is respectfully submitted Office Action has not performed the analysis required by MPEP 2181-2183 to establish that any element of King comprises a “time division means” as claimed. In order to establish that King’s multiplexer 11 is a time-division means, the record must show at least that “(A) the prior art element performs the identical function specified in the claim in substantially the same way, and produces substantially the same results as the corresponding element disclosed in the specification... (B) a person of ordinary skill in the art would have recognized the interchangeability of the element shown in the prior art for the corresponding element disclosed in the specification... and (C) there are insubstantial differences between the prior art element and the corresponding element disclosed in the specification.” The record does not contain such showings, and it is respectfully submitted that the art does not support such a showing. One skilled in the art would understand that the time division means recited in the

claim 1 and described in the specification receives an electrical signal. King appears to disclose an all optical system that receives and then multiplexes optical signals. Nothing suggests that King could operate if provided with an electrical signal. King functions differently than the means recited in claim 1, King's system is not interchangeable with the recited means and there are more than insubstantial differences between King and the invention of claim 1. Claim 1 is submitted to be allowable over the art of record for this reason as well.

Claims 2-6 and 9-11 depend from claim 1 and are submitted to be allowable for at least the same reasons as claim 1.

Claim 7 is rejected under 35 U.S.C. 102(b) as being anticipated by King. Claim 7 recites a multichannel photocoupler. As discussed above in connection with claim 1, King does not disclose a photocoupler. Claim 7 further recites one or more "level coupling means," and the Office Action has not performed the analysis required by MPEP 2181-2183 to establish that level coupling means as recited in claim 7 are present in King. The limitation "one or more output signal separation means" has also not been addressed. A single prior art reference showing each element recited in claim 7 has not been identified, and it has not been established that King shows means equivalent to various means recited in claim 7. For these reasons, it is respectfully submitted that a prima facie case of obviousness has not been presented in connection with claim 7 and that claim 7 is allowable over the art of record.

Claims 8-11 depend from claim 1 and are submitted to be allowable for at least the same reasons as claim 7.

Claim 12 is rejected under 35 U.S.C. 102(b) as being anticipated by King. Claim 12 recites a multichannel photocoupler. As discussed above in connection with claims 1 and 7, King does not disclose a photocoupler. Claim 12 is submitted to be allowable for at least this reason.

In an effort to further distinguish claim 12 over the art of record, this claim has been revised to more specifically recite an input circuit for receiving at least one electrical input signal. It is submitted that one skilled in the art would recognize that photocouplers optically couple first and second electrical circuits, and therefore the fact that photocoupler input signals comprise electrical signals is inherent in the specification based on the word "photocoupler."

King discloses the multiplexing of optical signals and in no manner suggests an input circuit as claimed. Claim 12 is submitted to be allowable over the art of record for this reason as well.

Claims 13-17 depend from claim 12 and are submitted to be allowable over the art of record for at least the same reasons as claim 12.

Claim 18 is rejected under 35 U.S.C. 102(b) as being anticipated by King. As discussed above in connection with claims 1 and 7, King does not disclose a photocoupler. Claim 18 is submitted to be allowable for at least this reason. In an effort to further distinguish claim 18 over the art of record, this claim has been revised to more specifically recite an input circuit for receiving at least one electrical input signal. Claim 18 is therefore also submitted to be allowable over King for the reasons provided above in connection with claim 12.

#### REJECTIONS UNDER 35 U.S.C. 103(a)

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over King in view of Milhizer. Claim 4 depends from claim 1. Milhizer does not address the shortcomings of King discussed above in connection with claim 1. Claim 4 is therefore submitted to be allowable over the art of record for at least the same reasons as claim 1.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over King in view of Cox. Claim 6 depends from claim 1. Cox does not address the shortcomings of King discussed above in connection with claim 1. Claim 6 is therefore submitted to be allowable over the art of record for at least the same reasons as claim 1.

Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over King in view of Gulezynski. Claims 9-11 depend from each of claims 1-8 including independent claims 1 and 7. Gulezynski does not address the shortcomings of King discussed above in connection with claims 1 and 7. Claims 9-11 are therefore submitted to be allowable over the art of record for at least the same reasons as claims 1 and 7.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over King in view of Takatsu. Claim 3 depends from claim 1. Takatsu does not address the shortcomings of King discussed above in connection with claim 1. Claim 3 is therefore submitted to be allowable for at least the same reasons as claim 1.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over King in view of Takatsu. Claim 14 depends from claim 12. Takatsu does not address the shortcomings of King discussed above in connection with claim 12. Claim 14 is therefore submitted to be allowable for at least the same reasons as claim 12.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over King in view of Geller. Claim 8 depends from claim 7. Geller does not address the shortcomings of King discussed above in connection with claim 7. Claim 8 is therefore submitted to be allowable over the art of record for at least the same reasons as claim 7.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over King. Claim 15 depends from claim 12. As discussed above in connection with claim 12, King does not show a photocoupler or an input circuit for receiving at least one electrical input signal. The Office Action does not present a prima facie case of obviousness or show that it would have been obvious to somehow create a photocoupler with King or provide King with an input circuit for receiving at least one electrical input signal. Claim 15 is submitted to be allowable over King for at least the same reasons as claim 12.

The Office Action further relies on Official Notice to support a rejection of claim 15. The examiner's reliance on Official Notice is submitted to be improper and is hereby respectfully traversed. As provided by MPEP 2144.03, Official Notice may be taken of facts that are capable of "such instant and unquestionable demonstration as to defy dispute." *In re Ahlert*, 165 U.S.P.Q. 418, 420 (CCPA 1970). In the present case, the examiner attempts to take Official Notice of a legal conclusion, namely what would have been obvious to one skilled in the art. It is respectfully submitted that a legal conclusion of obviousness is not a fact that defies dispute. Moreover, none of the other assertions upon which the rejection of claim 15 is based are the type of facts that may be established by Official Notice. Applicant therefore traverses the examiner's reliance on Official Notice and requests that the examiner cite art to support this the rejection of claim 15 if the rejection of claim 15 is maintained. MPEP 2144.03(C).

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over the background section of the present application (hereinafter "APA") in view of King. The background section discloses that in the past, an N channel photocoupler required N light emitters and N light

receivers. One feature of the claimed invention is to reduce the number of emitters and/or receivers required. The examiner acknowledges that APA does not show or suggest one or more input sides, one or more time division means for subjecting one or more input signals at one or more respective channels to time division, a light-emitting element communicating at least one of the time-divided signal or signals to one or more output sides, a light-receiving element receiving at least one of the time-divided signal or signals from the light-emitting element, or one or more output signal separation means for decoding at least one of the time-divided signal or signals and for outputting same to at least one of the respective channel or channels. However, it is asserted that it would have been obvious to add all these features to APA based on the King's optical multiplexer.

As provided by MPEP 706.02(j), to support a rejection under 35 U.S.C. 103(a) the examiner should: 1) identify the proposed modification of the applied reference(s) necessary to arrive at the claimed subject matter and 2) explain why one of ordinary skill in the art at the time the invention was made would have been motivated to make the proposed modification. In the present case, the Office Action merely asserts that APA should "incorporate King's teachings" without in any manner explaining how this should be done. It is therefore respectfully requested that if this rejection is not withdrawn, the examiner explain what modification to APA is being proposed so that Applicant can better understand the basis for this rejection. It is respectfully submitted that a statement that teachings can be "incorporated" into another reference does not establish a prima facie case of obviousness.

The record also fails to identify a proper reason or motivation for modifying APA. Stating that a proposed modification would provide an advantage does not explain why one skilled in the art would have appreciated the asserted advantage and modified APA in some manner to obtain the advantage.

Because the proposed modification to APA has not been explained and a reason for making a change to APA has not been identified, it is respectfully submitted that a prima facie case of obviousness has not been presented in connection with claim 1 and that claim 1 is allowable over the art of record.

Moreover, as discussed above in connection with the Section 102(b) rejection of claim 1,

King does not disclose at least one or more time division means as claimed. Therefore, even if APA could somehow be combined with King, the result would not be the invention of claim 1. Claim 1 is submitted to patentably distinguish over APA in view of King for this reason as well.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over APA in view of King. The rejection of claim 7 provides no indication of how the examiner proposes to modify APA to produce the invention of claim 7 and lacks any explanation of why one skilled in the art would be motivated to modify APA to arrive at the invention of claim 7. For these reasons, it is respectfully submitted that a prima facie case of obviousness has not been presented and that claim 7 is allowable over the art of record. To the extent that the rejection of claim 1 is intended to support the rejection of claim 7, it is respectfully submitted that the above arguments distinguishing claim 1 over APA in view of King also show that claim 7 is allowable.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over APA in view of King. The Office Action indicates that claim 18 is rejected for the same reasons as claim 7. As discussed above in connection with claim 7, the record does not include a prima facie case of obviousness in connection with claim 7. Claim 18 is submitted to distinguish over APA and King for at least the same reasons as claims 1 and 7.

### CONCLUSION

Each issue raised in the Office Action dated March 14, 2007, has been addressed, and it is believed that claims 1-18 are in condition for allowance. Wherefore, reconsideration and allowance of these claims is earnestly solicited.

Should there be any outstanding matters that need to be resolved in the present application, the examiner is respectfully requested to contact Scott Wakeman (Reg. No. 37,750) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

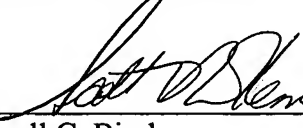
Application No. 10/820,030  
Amendment dated June 4, 2007  
Reply to Office Action of March 14, 2007

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If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.14; particularly, extension of time fees.

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Respectfully submitted,

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# **McGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS**

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On the cover: Representation of a fullerene molecule with a noble gas atom trapped inside. At the Permian-Triassic sedimentary boundary the noble gases helium and argon have been found trapped inside fullerenes. They exhibit isotope ratios quite similar to those found in meteorites, suggesting that a fireball meteorite or asteroid exploded when it hit the Earth, causing major changes in the environment. (Image copyright © Dr. Luann Becker. Reproduced with permission.)

Over the six editions of the Dictionary, material has been drawn from the following references: G. M. Garrity et al., *Taxonomic Outline of the Prokaryotes*, Release 2, Springer-Verlag, January 2002; D. W. Linzey, *Vertebrate Biology*, McGraw-Hill, 2001; J. A. Pechenik, *Biology of the Invertebrates*, 4th ed., McGraw-Hill, 2000; U.S. Air Force Glossary of Standardized Terms, AF Manual 11-1, vol. 1, 1972; F. Casey, ed., *Compilation of Terms in Information Sciences Technology*, Federal Council for Science and Technology, 1970; *Communications-Electronics Terminology*, AF Manual 11-1, vol. 3, 1970; P. W. Thrush, comp. and ed., *A Dictionary of Mining, Mineral, and Related Terms*, Bureau of Mines, 1968; *A DOD Glossary of Mapping, Charting and Geodetic Terms*, Department of Defense, 1967; J. M. Gilliland, *Solar-Terrestrial Physics: A Glossary of Terms and Abbreviations*, Royal Aircraft Establishment Technical Report 67158, 1967; W. H. Allen, ed., *Dictionary of Technical Terms for Aerospace Use*, National Aeronautics and Space Administration, 1965; *Glossary of Stinfo Terminology*, Office of Aerospace Research, U.S. Air Force, 1963; *Naval Dictionary of Electronic, Technical, and Imperative Terms*, Bureau of Naval Personnel, 1962; R. E. Huschke, *Glossary of Meteorology*, American Meteorological Society, 1959; *ADP Glossary*, Department of the Navy, NAVSO P-3097; *Glossary of Air Traffic Control Terms*, Federal Aviation Agency; *A Glossary of Range Terminology*, White Sands Missile Range, New Mexico, National Bureau of Standards, AD 467-424; *Nuclear Terms: A Glossary*, 2d ed., Atomic Energy Commission.

# **McGraw-Hill Dictionary of Scientific and Technical Terms, Sixth Edition**

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# or

## function

describes the necessary relationships among the variables of a system to achieve an optimal, or suboptimal, performance based on a given approximate model of the plant and its environment. { 'äp-tä-miz-ing kən'tröl, fəŋk-shən }

**optimum allocation** [STAT] A procedure used in stratified sampling to allocate numbers of sample units to different strata to maximize precision at a fixed cost or minimize cost at a selected level of precision. { 'äp-tä-mäm, al-ä-kä-shən }

**optimum array current** [ELECTROMAG] The current distribution in a broadside antenna array which is such that for a specified side-lobe level the beam width is as narrow as possible. { 'äp-tä-mäm ä'rä, kə-rənt }

**optimum bunching** [ELECTR] Bunching condition required for maximum output in a velocity modulation tube. { 'äp-tä-mäm bəŋtʃ-ing }

**optimum charge** [ORD] Propelling charge, with web and propellant weight combination, which produces maximum efficiency at a specified pressure. { 'äp-tä-mäm 'chärj }

**optimum code** [COMPUT SCI] A computer code which is particularly efficient with regard to a particular aspect; for example, minimum time of execution, minimum or efficient use of storage space, and minimum coding time. { 'äp-tä-mäm kōd }

**optimum coupling** See critical coupling. { 'äp-tä-mäm kəp-lig }

**optimum cure** [CHEM ENG] The degree of vulcanization at which maximum desired property is reached. { 'äp-tä-mäm kyər }

**optimum filter** [ELECTR] An electric filter in which the mean square value of the error between a desired output and the actual output is at a minimum. { 'äp-tä-mäm 'fil-tər }

**optimum flight** [AERO ENG] An aircraft flight so planned and navigated that it is completed under the optimum conditions of minimum time and minimum exposure to dangerous flying weather. { 'äp-tä-mäm 'flīt }

**optimum moisture content** [GEOL] The water content at which a specified compactive force can compact a soil mass to its maximum dry unit weight. { 'äp-tä-mäm 'mōis-chər kəntent }

**optimum programming** [COMPUT SCI] Production of computer programs that maximize efficiency with respect to some criteria such as least cost, least use of storage, least time, or least use of time-sharing peripheral equipment. { 'äp-tä-mäm prō-gram-ing }

**optimum reverberation time** [ACOUS] The reverberation time which is most desirable for a given room size and a given use, such as speech, chamber music, or symphony orchestra. { 'äp-tä-mäm rē-vər-bə'rā-shən, 'tīm }

**optimum separation point** [PETRO ENG] In extraction of natural gasoline, the pressure and temperature conditions necessary for maximum condensation in the separators under field conditions. { 'äp-tä-mäm, sep-ä'rā-shən, 'pōint }

**optimum-track ship routing** [NAV] The selection of an optimum track for a transoceanic crossing by the application of long-range predictions of winds, waves, and currents to the knowledge of how the routed ship reacts to these variables. { 'äp-tä-mäm 'trak 'ship, 'rūd-ing }

**optimum traffic frequency** See optimum working frequency. { 'äp-tä-mäm 'traf-ik, frē-kwən-sē }

**optimum working frequency** [COMMUN] The most effective frequency at a specified time for ionospheric propagation of radio waves between two specified points. Also known as frequency optimum traffic; optimum traffic frequency. { 'äp-tä-mäm 'wörk-ing, frē-kwən-sē }

**optional halt instruction** [COMPUT SCI] A halt instruction that can cause a computer program to stop either before or after the instruction is obeyed if certain criteria are met. Also known as optional stop instruction. { 'äp-shən-əl 'hōlt ä-strək-shən }

**optional product** [COMPUT SCI] Any of various forms of documentation that may be made available with a software product, such as source code, manuals, and instructions. { 'äp-shən-əl 'präd-äkt }

**optional stop instruction** See optional halt instruction. { 'äp-shən-əl 'stöp ä-strək-shən }

**option switch** [COMPUT SCI] 1. A DIP switch or jumper that activates an optional feature. 2. A software parameter that overrides a default value and thereby activates an optional feature. Also known as option toggle. { 'äp-shən, 'swich }

**option toggle** See option switch. { 'äp-shən, 'täg-əl }

**optoacoustic detection method** [ANALY CHEM] A method of detecting trace impurities in a gas, in which the absorption of a sample of the gas at various light frequencies is measured by directing a periodically interrupted laser beam through the sample in a spectrophone and measuring the sound generated by the optoacoustic effect at the frequency of interruption of the beam. { 'äp-tō-ä-küs-tik dē'tek-shən, 'meth-əd }

**optoacoustic effect** [PHYS] A phenomenon in which a periodically interrupted beam of light generates sound in a gas through which it is passing; this results from energy in the light beam being transformed first into internal motions of the gas molecules, then into random translational motions of these molecules, or heat, and finally into periodic pressure fluctuations or sound. Also known as thermoacoustic effect. { 'äp-tō-ä-küs-tik i, fekt }

**optoacoustic modulator** See acoustooptic modulator. { 'äp-tō-ä-küs-tik 'māj-ä, lād-ər }

**optoacoustic spectroscopy** See photoacoustic spectroscopy. { 'äp-tō-ä-küs-tik spek'träs-kə-pē }

**optocoupler** See optoisolator. { 'äp-tō-kəp-lər }

**optoelectronic amplifier** [ENG] An amplifier in which the input and output signals and the method of amplification may be either electronic or optical. { 'äp-tō-i, lek'trən-ik 'am-plə-fī-ər }

**optoelectronic integration** [ELECTR] A technology that combines optical components with electronic components such as transistors on a single wafer to obtain highly functional circuits. { 'äp-tō-i, lek'trən-ik, in-tē'grā-shən }

**optoelectronic isolator** See optoisolator. { 'äp-tō-i, lek'trən-ik 'ī-sə, lād-ər }

**optoelectronics** [ELECTR] 1. The branch of electronics that deals with solid-state and other electronic devices for generating, modulating, transmitting, and sensing electromagnetic radiation in the ultraviolet, visible-light, and infrared portions of the spectrum. 2. See photonics. { 'äp-tō-i, lek'trən-iks }

**optoelectronic scanner** [ELECTR] A scanner in which lenses, mirrors, or other optical devices are used between a light source or image and a photodiode or other photoelectric device. { 'äp-tō-i, lek'trən-ik 'skan-ər }

**optoelectronic shutter** [ENG] A shutter that uses a Kerr cell to modulate a beam of light. { 'äp-tō-i, lek'trən-ik 'shad-ər }

**optogalvanic effect** [PHYS] The alteration of the current through an electrical discharge by light incident on the discharge space. { 'äp-tō-gal'van-ik i, fekt }

**optogalvanic spectroscopy** [SPECT] A method of obtaining absorption spectra of atomic and molecular species in flames and electrical discharges by measuring voltage and current changes upon laser irradiation. { 'äp-tō-gal'van-ik spek'träs-kə-pē }

**optoisolator** [ELECTR] A coupling device in which a light-emitting diode, energized by the input signal, is optically coupled to a photodetector such as a light-sensitive output diode, transistor, or silicon controlled rectifier. Also known as optical coupler; optical isolator; optically coupled isolator; optocoupler; optoelectronic isolator; photocoupler; photoisolator. { 'äp-tō'ī-sə, lād-ər }

**optometrist** [MED] One who measures the degrees of visual powers, without the aid of cycloplegic or mydriatic agents. { 'äp'tām-ə, trist }

**optometry** [MED] Measurement of visual powers. { 'äp'tām-ə-trē }

**optophone** [ENG ACOUS] A device with a photoelectric cell to convert ordinary printed letters into a series of sounds; used by the blind. { 'äp-tə, fōn }

**optovoltic effect** [PHYS] The alteration of the potential difference across a discharge by light incident on the discharge space. { 'äp-tō-vōl'tā-ik i, fekt }

**OPW method** See orthogonalized plane-wave method. { 'äp-äw 'dab-əl, yū, 'meth-əd }

**or** [COMPUT SCI] An instruction which performs the logical operation "or" on a bit-by-bit basis for its two or more operand words, usually storing the result in one of the operand locations. Also known as OR function. [MATH] A logical operation whose result is false (or zero) only if every one of its operands is false, and true (or one) otherwise. Also known as inclusive or. { ör }